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Editorial

AN APPEAL ON BEHALF OF THE ROYAL (DICK) VETERINARY COLLEGE

IN a further column we publish in detail an appeal by the newly appointed Principal (Colonel Sir Arthur Olver) on behalf of the funds required to complete the building scheme of the Royal (Dick) Veterinary College. In order effectually to combat disease, whether animal or human, research is essential and to obtain the proper facilities for this one must have equipment and be prepared adequately to remunerate those who give up their lives to this work. For this, money is necessary—in fact, progress can't be made without its aid; and, after all, it is only fair that those who benefit by the results of research should contribute towards its endeavour to attain a successful goal. Unluckily, we are not in ourselves a rich profession, but we all have influence, and it is amazing to see how far the eddies produced by a stone cast into a pond will go. Let all therefore—and especially those who owe their livelihood to the teaching obtained at the Dick College — come forward now and help this Institution to occupy a position second to none amongst the Veterinary Colleges and Research Institutes of the world.

THE RAPPROCHEMENT BETWEEN THE PROFESSION AND THE PEOPLE'S DISPENSARIES FOR SICK ANIMALS OF THE POOR

A MATTER for serious consideration by the profession and of vital importance to the sick animals of poor persons unable to pay fees for veterinary treatment has recently been brought before the Council of the Royal College by a courteous gesture on the part of the Governing Council of the People's Dispensaries for Sick Animals of the Poor, who celebrate this year the twenty-first anniversary of their foundation.

Originally the idea of Mrs. Dickens, a philanthropic lady whose fondness for animals and sympathy for their owners when unable, or too proud, to seek veterinary advice for which they were unable to pay when their pets became sick, the "People's Dispensaries for Sick Animals of the Poor" (Incorporated) has grown from its original start in a small cellar in the East End of London into a vast organisation which now embraces over one hundred branches in various parts of England and Wales.

Its reputation in the eyes of the public for animal charity and its financial support are only exceeded by one other society, and its hospital ramifications already extend into some half-dozen other countries, where the support which they have received has clearly demonstrated that they have supplied a long-felt want.

The members of the veterinary profession in this country have for a long time commented upon the growth of this society—not altogether unfavourably except upon one point, and that was entirely on behalf of the sick animals, viz., that it was not fair because an animal belonged to a poor man that the diagnosis of its ailment when "down and out" should be made by persons whose knowledge of the symptoms and treatment of disease could not possibly be that of a veterinary surgeon.

In this respect the chances of fair play for the poor man's animal were small as compared with the more fortunate beast belonging to a well-to-do owner—for no one can possibly deny that the man who spends his whole life studying the subject of disease, and who has had the advantage of a minimum of five years' scientific foundation such as a college education gives, *must* know more about its pitfalls and its triumphs than the man whose training is mere "rule of thumb." Some Governments have already recognised this as a grievance to be officially remedied, and in Spain, Norway, Eire, France and the Soviet Republic unqualified practice is not permitted—no one but a veterinary surgeon being permitted to diagnose or prescribe for animal ailments.

It is the diagnosis which matters—anyone can carry out treatment under

skilled supervision when once the diagnosis has been made—and one must not forget that, unlike the advantages possessed by the doctor of the human branch of medicine, we cannot ask our patients questions. A veterinary surgeon has to rely on his powers of observation and the replies given by an intelligent (or often unintelligent and non-observant) owner. Besides which, there is no coroner's inquest further to protect the helpless patient by the fear of what it might reveal to an inquisitive owner.

By the new arrangement, the acceptance or refusal of the terms of which rests entirely with the local practitioner, the cases will still be brought to the local dispensary and those of trivial consequence be dealt with as at present, but any really visibly sick case, where a doubtful diagnosis is likely to cause unnecessary or prolonged suffering, will be sent on to a veterinary surgeon and handed over absolutely from that time entirely to his discretion and care. He will not be asked to attend these cases free of charge, but an arrangement will have been made beforehand whereby he does this at a reduced fee. In this way he not only becomes a safeguard to the sick animal, but also protects himself in regard to the abuse of charity by members of his own *clièntele*, amongst whom there are always some who try to get something for nothing. There are sure to be some differences of opinion at first, but the scheme is to be given a trial for a year and during that time any complaints which may arise may be brought to the notice of a committee which has been mutually agreed upon between the Council of the R.C.V.S. and the governing body of the People's Dispensaries for Sick Animals of the Poor.

So far the scheme has made an amicable commencement, and there is every reason to hope that it will eventually work out equally to the benefit of the sick animals of poor owners and the mutual satisfaction of the members of the controlling body of this philanthropic institution and the individual practising members of the veterinary profession.

THE SERIOUS SHORTAGE OF QUALIFIED ASSISTANTS

In the spring of the year, at the time of parturition, the daily diary of the country practitioner is always so full of urgent calls that, if working single-handed in a busy practice, it becomes an impossibility to give adequate attention to all; and, usually, his neighbour is equally pressed and therefore unable to lend a hand. It is at this time that the value of a competent assistant is appreciated and one has only to travel as a consultant amongst one's colleagues or to

talk to them at professional meetings (when they can spare time to come) to know how serious this dearth of qualified young men has become.

A glance at the advertisement columns of our weekly contemporary, *The Veterinary Record,* too, gives confirmation of this shortage in every issue, for whereas the column allotted to "Appointments Required" (i.e., those who seek assistantships) is limited to two or three at most, the "Appointments Vacant" rarely contains less than twelve or fifteen applications for graduates.

In addition there are almost always a number of whole-time positions offered in Great Britain, Ireland or the Colonies, all of them pensionable posts; and good practices for sale, usually from death vacancies.

It is a position which becomes an anomaly in the eyes of the general public, many of whom still consider that the horse is the chief patient of a veterinary practitioner, and they realise that horses have been forced off the streets by the progress of mechanisation. They have not yet fully grasped that the veterinary profession plays a very important part in Preventive Medicine and in the health of man as well as of animals, and that it is the sudden awakening of the Government itself (by the formation of a State Veterinary Service) which has been the principal cause of the shortage of candidates for country practices. This shortage is likely to last for some years to come, and there is no better time for a young man who likes the life of a veterinary surgeon to enter the portals of the veterinary profession. He can at any rate rest assured of a livelihood right from the day he obtains his diploma.

IDENTIFICATION OF THE DOG BY NASAL IMPRINTS

We draw the attention of our readers to a thesis written by Dr. David, a French colleague (when sitting as a candidate for his Doctorate degree) on the subject of the methods used in order to describe and identify the dog.

In the methods used he has introduced that of the nasal imprint.

Although not new, it is worth consideration under certain circumstances, but its efficacy cannot be compared with that of the fingerprint method used for the identification of man.

It has been tried in England, principally on greyhounds, but the results have not been sufficiently satisfactory to warrant its inclusion as a routine measure.

Perhaps some day a method may be found which will universally give clear, uniform impressions; but at present the methods used both in dogs and cattle are not satisfactory in these respects.

General Articles

ANIMAL HYGIENE IN INDIAN SCHOOL EDUCATION

By CAPTAIN A. C. AGGARWALA, B.Sc.Hons., M.R.C.V.S., A.I.R.O.

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It is admitted by all that agriculture is the "key industry" of the whole of India, and the livestock, more particularly cattle, play a very important role in the country's agricultural economy. Our cattle at present happen to be ill-bred, underfed, weak, ill-managed and housed under notoriously insanitary conditions—circumstances which reduce their vitality and render them more susceptible to numerous contagious and parasitic diseases which carry away every year thousands and thousands of animals, leaving many *zemindars* almost helpless and in a state of abject poverty. A study of the incidence of cattle mortality due to contagious diseases would show that the country incurs heavy financial losses on this account, and that this financial drain is continuous, occurring year after year. Some means must necessarily be devised to stop this recurrent drain, or, at any rate, to reduce it materially.

In the humble opinion of the author of this short note, there are only two ways to tackle the situation with any measure of success: first, to strengthen the existing veterinary staff by increasing the personnel and by opening up many more veterinary hospitals; and secondly, to educate the masses in matters relating to animal hygiene, management and feeding of livestock, prevention of contagious diseases, etc., etc. Both these measures necessitate financial support, and the country must make bold to spend less in prevention initially, to save many in the long run. Much is being done by the Government of India and the Provincial Governments to strengthen the veterinary staff in the country, but hardly any attention has so far been paid to the education of the people in animal hygiene excepting what the Rural Reconstruction Departments are doing. In this short note the author proposes to deal with only the latter aspect of the problem.

The common *zemindar* at present is ignorant, illiterate and apathetic. He is unaware of the general principles underlying animal hygiene and does not take intelligent interest in his animals; he fails to adopt the common-sense control measures against contagious diseases as are suggested and advocated from time to time by the veterinary departments through the Press, from the

platform or by personal contact. Several of the most deadly and contagious animal diseases rage up and down the country, very often two or more at a time, and the loss to the *zemindar* is incalculable. When he wishes to plough his fields, bullocks die, and when he wants milk for himself and the members of his family, his cows and buffaloes die. The *zemindar* merely explains this piously by saying that it is all due to the will of God. "Allah gives and Allah takes" is his slogan all the time, while he is groaning under pangs of poverty and helplessness.

The farmers never think out what they can do to stop the spread of preventable diseases, and the only precaution that they take is to hang up charms across the roads leading in and out of the villages in the hope that the disease will not get past the charm.

They know that the veterinary departments in the different provinces provide sera and vaccines for inoculating animals, in the efficacy of which they have a fair amount of faith, but they do not realise that inoculation is a very expensive way of stopping and combating contagious diseases, and it is made all the more expensive by the fact that the people take no other precaution against these diseases. In what other country of the world would the people be allowed to wander from one village to another with diseased cattle in order to spread disease and then to expect the veterinary department to follow in their footsteps with bottles of serum to be pumped into cattle without any charge whatever!

The position with the various provincial veterinary departments at present is about the same as was with the public health departments (medical) some 30 or 35 years ago. The people at that time actually used to conceal cases of plague, cholera, smallpox and other human contagious diseases, and almost refused to adopt prophylactic measures that were advocated by the public health officials. The vaccinators were particularly dreaded by all.

Compare the attitude adopted in order to prevent epidemics of human disease. The people refuse to allow strangers or people from infected villages to come into their villages; they insist upon their camping outside until they are fully satisfied that they are carrying no infection with them. Mothers very willingly carry their children, when hardly two or three months old, to the municipal vaccinators to get them vaccinated against smallpox. The incidence of these human contagious diseases, as a result, has greatly diminished. But where cattle are concerned no precaution whatsoever is taken. The cattle of the village are allowed to graze together, the sick and the healthy. Nobody makes any attempt to keep imported or newly purchased cattle separate until it is certain that they have brought no disease with them. Cattle purchased at fairs are never kept isolated from others, and yet if people would only take common-sense precautions with their animals, refuse to allow animals from unknown or suspicious villages to enter their village and grazing grounds, tie up newly bought animals separately for about ten days and act in a sensible

manner in controlling movements of animals, the incidence of contagious diseases and thereby heavy recurrent financial losses would be considerably reduced; in time, perhaps, even to negligible figures.

The Public Health Departments in the various provinces have succeeded wonderfully well indeed in educating the masses in general and personal hygiene and in the prevention of many dreadful contagious diseases. As compared with the veterinary departments they have achieved this envious position through educating the schoolchild—by giving him simple lessons in provincial vernaculars in personal and general hygiene, cleanliness, disinfection, prevention of contagious diseases, importance of drinking pure water, ventilation, etc., etc. Most of the Indian Universities at present have hygiene and physiology as important subjects in the matriculation examinations, and in the primary and middle classes of the schools books on hygiene, general cleanliness, etc., are compulsory parts of the education of growing children. In the Punjab, for instance, books like " Tariqussihhat " (The Way to Health—lit.) in Urdu are read by all school students. Where human health is desirable, animal health is also equally important. There are a number of dreadful diseases that are common to both man and animals and are transmissible from one to the other. From the humanitarian point of view also the animals deserve great sympathy and consideration in this respect.

Both in the interests of the people and their domestic animals, which, incidentally, constitute a major portion of their potential wealth, it is necessary that suitable courses of instruction in animal hygiene be introduced in all rural schools and high classes. Such instruction should form a part of the subject of agriculture or of hygiene and physiology in the matriculation classes, or else it may be introduced as a general measure in schools as a separate subject by itself. With what subject animal hygiene is linked is not so important as its introduction into the school curriculum. The best method of conquering the laziness, apathy and ignorance of the *zemindar* in this connection is to approach him through the medium of school education. " The child is the father of the man " is an old saying which is very true in its practical application. By this means what has been achieved in human hygiene will also be achieved in animal hygiene, and heavy losses due to recurrent cattle mortality reduced tremendously.

The effects of the introduction of animal hygiene in school education will not be noticeable for some time, but the progress made will be steady and more lasting. In the long run it will teach the *zemindar* to take intelligent interest in matters relating to the welfare of his animals. The child in the school who is given lessons in animal hygiene and its implications will not only get the " spirit of self help " instilled into himself with respect to his animals, but will also form a nucleus of useful propaganda work amongst the illiterate members of his family and neighbours.

EPILEPTIFORM ATTACKS IN YOUNG ANIMALS

By W. NAIRN, M.R.C.V.S.
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In isolated parts of the country one may still come across ancient laymen who retain a faith in the influence of spirits or the evil eye as a cause of disease in their stock. Our own profession discarded these views and attempted to replace such faiths with explanations which one must conclude are largely based on things seen.

To-day science must frequently review its conclusions or find itself holding opinions no more accurate than the traditional demonology of past periods.

One group of conditions in which in my opinion such irrational conclusions are found is in the epileptiform attacks of young animals of various species—canine, bovine and porcine. In puppies these so-called "fits" are usually ascribed to the harmful action of internal parasites, teething, or other disturbances of the alimentary track.

In calves foreign bodies in the stomach, such as hair and fibre balls, are the common factors blamed for the condition, while in the pigling, worms and indigestion are the usual explanations.

All animals have to acquire teeth in youth and if we make careful examination of puppies when we get opportunity post-mortem, we will find many infested with internal parasites (likewise piglings), yet they were never known to have any attack resembling epilepsy.

In calves and lambs, if accident should provide us with a post-mortem, we may find masses of foreign matter in the stomachs although clinically they had had no history of nervous disturbance.

Observations on these patients cause us to consider whether there can be any common factor which is the chief one in the production of this phenomenon in the young, and I venture to submit the view, which others no doubt hold, but few have definitely stated, that the true etiology is to be found in the fact that these animals are all more or less in a rachitic condition.

Through improper treatment—errors of diet and defective hygiene—they have reached the threshold of rickets and in such condition their nervous systems are most sensitive to any exciting factor.

If the condition of these animals is only slightly ameliorated, they may not succumb to one of these attacks, then they show more definitely the rachitic changes in the skeleton. In slight cases a simple laxative or vermifuge treatment with change of food may improve matters, especially if cod liver oil is added, but my most successful treatment for epileptiform attacks has been the application of the treatment for rickets, combined with a sedative, to control in the early stages the onset of a probably fatal "fit."

In doses to suit the respective species I administer in those cases a mixture of Calcium, Liq. Arsenicalis and Chloral, and it is surprising how effectively it seems to dissolve the hair-ball.

It has generally been recognised that the most successful treatment for internal parasites in young animals is improved nutrition, and so we find in this condition in puppies and pigs, for as they improve in fitness under treatment the nervous symptoms which we believed due to parasites tend to disappear.

Some may question the use of arsenic in rickets, but it has long been known that it improves calcium metabolism, and that too is certainly my experience.

POISONING BY PHYTOLACCA DODECANDRA L'HERIT.—FAMILY: PHYTOLACCACEÆ

By R. W. M. METTAM, M.Sc., M.R.C.V.S.

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THIS woody climber or shrub occurs widely in the tropics of the Old and New World and is particularly common in certain parts of Equatorial Africa.

Phytolacca dodecandra is a very attractive looking plant when in full foliage and bearing ripe fruit. It may grow to a height of 30 feet or so and has long elliptical, glabrous, olive green leaves up to four inches long. The flowers are yellowish white and form pendulous racemes which may attain 30 cm. in length. They are followed by fruits which from a distance resemble red currants. They are produced in dense clusters, are fleshy and lobed.

In East Africa this plant is most prevalent along river banks and on the shores of the great lakes. In the writer's experience it grows luxuriantly in the Kavirondo country, in Kenya, and along the shores of the Victoria Nyanza at Entebbe and other parts of the Kyagwe coast.

According to Irvine, P. dodecandra is the mustard tree of the Bible.

Reference in the Literature

No reference to P. dodecandra can be found in the available literature, though several authors have drawn attention to the poisonous properties of some relative species, namely, P. dioica, P. americana and P. abyssinica.

Thus, Lander (1926), discussing P. decandra (=P. americana), which is known in the States as "garged," "poke weed" or "American nightshade," mentions that all parts of the plant contain a purgative principle. Large doses cause super-purgation and are fatal to the dog. In the States fatal cases of poisoning have been reported in cattle following the ingestion of leaves.

This plant has been introduced from America into Southern Europe and South Africa.

Watt and Breyer-Brandwijk, working in Johannesburg, mention that the plant, which is known by a variety of names, is used medicinally by the natives. They declare that both the berries and root cause vomition and purgation.

These authors quote Pammel as saying that the poisonous principles of the root are acrid alkaloids known as phytolaccin and phytolacco toxin. According to Pammel the chief symptom of poisoning is violent but slowly produced emesis, the vomiting commencing some two hours after ingestion of the plant material. This is eventually followed by much retching, severe purgation and sometimes convulsions, during which death often supervenes.

An allied species—P. abyssinica—is used in the native pharmacopœias of Rhodesia and Abyssinia. In the latter country, according to Watt and his colleagues, it is popular as a tapeworm remedy.

Bryant states that the Zulus employ the root and leaves as an emetic in certain fevers and in urino-genital complaints, the administration of the material causing diaphoresis, purgation and vomition. The fruit is said to contain a toxic saponin and tannic acid. Similarly, the root of the plant, P. heptandra, widely used in South Africa and Rhodesia, is said to contain a saponin. It is interesting to note that this plant—P. heptandra—has been employed by certain African tribes to treat lung sickness, i.e., contagious pleuro-pneumonia of cattle.

Steyn has described the toxic action of P. dioica, a tree popularly known in South Africa as the Belombra or Belhambra (=Bella sombra), on account of the deep shade afforded by its dense foliage. He experimented on sheep with fruits and dry leaves. Two animals succumbed after receiving 2,400 grammes and 1,600 grammes of fresh fruit respectively, the cause of death apparently being due to tympany or hoven. At post-mortem there was intense cyanosis and distension of both rumen and reticulum with gas. In addition, in one animal, there were hæmorrhages in the lungs under the endocardium of the left ventricle. The leaves were shown by Steyn to be non-toxic. There seems to be some doubt about the active principle of this tree, but apparently there may be four different saponins in the leaves.

East African Investigations

The plant is known to the Ja-luo of Kenya as "Owoho," and to the Baganda as "Luwoko." There is no doubt that in the past it was widely used by these people for poisoning and other nefarious purposes. In fact, attention was first drawn to the plant by the medical authorities who were certain that ground-up bark mixed with porridge had been used in a murder case by a husband to dispose of his wife's paramour. The bark fed to a rabbit and sheep produced typical symptoms of acute irritant poisoning.

Later, further supplies of the bark and whole plant were sent to the laboratory for further experiments when the roots and woody parts were found to be particularly toxic for sheep.

Experiment No. 1.—30 grammes of fresh leaves produced no symptoms. Although kept short of food for some days, the animal firmly refused to eat the plant and a small quantity was then drenched, but without result.

Experiment No. 2.—A second animal was inoculated subcutaneously with 20 c.c. of a three-months-old tincture made from fresh leaves. During the following four days the animal was gravely ill, and it appeared as if a sub-lethal dose had been given. The main symptoms were great depression, hiccough, trembling and quivering of the main muscle groups and continual nodding of the head. After 12 hours diuresis was noted as well as a slight diarrhœa which was olive green in colour and fœtid. All these symptoms persisted for 72 hours, but gradually abated until on the fourth day the animal improved rapidly and was soon discharged from experiment.

Experiment No. 3.—A sheep weighing 73 lbs. was inoculated with 3 c.c. aqueous extract obtained by macerating 14 grammes of powdered root and bark in 100 c.c. of water. The injection was given at 11.45 a.m.

At 1 *p.m.*—There was profuse frothy salivation and considerable diarrhœa of a deep olive green colour. Respirations were rapid, shallow and accompanied by grunting. The expression was very anxious and the animal was most uneasy.

At 2.5 *p.m.*—The symptoms were much more marked. The diarrhœa was very profuse, liquid and flecked with blood. The pupils were widely dilated. The animal stood in a corner with arched back, salivating profusely.

At 3 *p.m.*—The animal was semi-comatose and obviously dying. Visible mucous membranes were swollen and cyanosed.

The diarrhœa now contained much blood and mucus. It was very profuse and fœtid.

At 4 *p.m.*—The condition of the animal was much worse and all the symptoms noted above were greatly aggravated.

The animal was found dead at 5.30 p.m., i.e., nearly six hours after administration of the plant extract.

At post-mortem the following lesions were found, viz.: per-acute gastro-enteritis, the mucous membrane of the abomasum and small intestine being particularly affected. No ulceration was seen.

The lungs were deeply congested and œdematous. Large reddish purple petechiæ were found on the endocardium of the left ventricle of the heart. The spleen, liver and kidneys were congested.

This experiment proved the existence in the root and bark of a very powerful gastro-intestinal irritant poison.

Experiment No. 4.—Two sheep were drenched with crushed berries. One received 250 grammes of the ripe fruits, but showed no symptoms of ill-health, while the other, which was given the same amount of the unripe berries, evinced mild symptoms of gastro-enteritis but recovered completely after being ill for two days.

Discussion

It would appear from these experiments that while the whole plant must be regarded as highly poisonous, the root and bark contain the greatest concentration of the toxic principles. The ripe berries appear to be innocuous, at any rate in small amounts, whereas when they are unripe they are poisonous. This is not a unique occurrence, for the fruits of many deadly poisonous plants are not only harmless but may actually be edible, e.g., the fruits of the East African arrow poison tree Acokanthera schimperi, which are often made into preserves. Recently in the United States, Hendrickson and Hilbert showed that the ripe berries of phytolacca decandra (=americana), a near relation of P. dodecandra, are harmless for chickens though the roots and fresh shoots are exceedingly poisonous for swine.

An observant Muganda headman volunteered the information that the roots and wood are the most rapidly poisonous parts of P. dodecandra, while the leaves and fruit are less so. In fact, the juice of the leaves is a popular purgative among the Baganda. Small amounts of the juice (it was impossible to obtain more precise information about the real dose) of bruised leaves is smeared on a certain variety of a peeled banana which is then roasted and eaten hot. This treatment is said to cure diarrhœa and other intestinal disorders. If an overdose is taken it causes violent colic and death.

When used as a poison the practice was to add the juice of the leaves, flowers and fruits, sometimes even of the root and young shoots, to banana beer. A liberal potion of this draught drunk by the unfortunate victim caused great pain, rapid prostration and death.

There appears to be little doubt that in the past this plant was widely used as an instrument of violent death in many parts of tropical Africa.

Up to the present there is little information as to whether cases of poisoning by this plant occur naturally in the domestic animals, but where the plant grows in profusion it must always be suspect in cases of sudden death preceded by violent gastro-intestinal symptoms.

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THE BLOOD PICTURE OF A CASE OF WOODEN TONGUE IN CATTLE

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Literature

A NUMBER of cases of actinomycosis occur in man annually, and the blood picture is stated to show a hypochromic anæmia and leucocytosis—Buchanan (1909). Cabot (quoted Ewing) reports a case where the WBC's fell to as low a figure as 3,700/c.mm., although most writers on the subject consider that an absolute neutrophilia is more typical of the disease. Ewing (1903), examining a case of pulmonary actinomycosis, reported 21,500 WBC/c.mm., whilst Bierfruend is quoted by this same author as considering a chlorotic anæmia with hæmoglobin figures of 30 per cent. to 50 per cent. normal. In a series of four cases at the Massachusetts Hospital involving the liver and lungs, nine leucocyte counts averaged 22,544 — Cabot (1904). Recently, Whitby and Britton (1935) summarise the position by stating that the invasive stage of the disease is characterised by a leucocytosis of the order 20,000 to 30,000 per c.mm., of which some 90 per cent. are polymorphonuclears. When the disease is extensive, the leucocytosis may be very marked. In fatal forms of the disease, especially abdominal infections, there is a progressive anæmia which terminally may be very severe.

Curiously enough, there are few records of blood counts in cattle suffering from wooden tongue, therefore the following case is of interest.

Subject

A 34-month-old pedigree Shorthorn heifer, in good condition, bought 14 days previously at a public auction for 37 guineas, was noticed to be "snoring" and also dribbling saliva from the mouth. A clinical examination revealed considerable sub-lingual œdema, marked induration of the tongue and an extensive accompanying ulceration of the dorsum. The snoring was due to mechanical pressure on the larynx, and the case was typical of acute actinobacillosis—wooden tongue. This heifer had been bred and was bought at a farm where the stock has been consistently tested regularly for tuberculosis, mastitis and contagious abortion for a number of years. She was, therefore, sold guaranteed free from tuberculosis and abortion, but of course as a maiden heifer only six months in calf the question of streptococcal infection of the udder did not arise. This, then, was a clear-cut case of typical uncomplicated actinobacillus infection of the tongue and associated parts in an otherwise perfectly healthy animal.

The blood pictures of a normal, in-calf, tuberculin tested heifer of approximately the same age and that of the affected animal read:

	Normal	*Wooden Tongue*
Hæmoglobin	74	78
White blood cells	9,875	13,800
"Youngs"	0	.7
"Bands"	.42	.3
Polymorphs	29.58	28.3
Eosinophiles	15.4	8.0
Basiphiles	1.25	2.0
Large lymphocytes	8.55	19.7
Medium lymphocytes	23.25	28.0
Small lymphocytes	19.75	7.7
LL : SL ratio	1 : 1.6	1 : 0.64
Total lymphocytes	51.55	55.4
Monocytes	1.85	6.3

The following points are noteworthy: (a) the leucocytosis, (b) the absence from the differential count of an increase in adult polymorphs or metamyelocytes, (c) the marked stimulation of the large lymphocytes and monocytes, (d) the depression of the eosinophiles with the increased percentage of basiphiles, (e) the narrow LL : SL ratio, and (f) the tendency for a shift to the right in the weighted mean of the polymorphs.

The first point noted in carrying out the differential count was the relative absence of neutrophiles, because from a study of the literature a high percentage of polymorphs would normally have been expected. That a leucocytosis was present was quickly revealed by the finding of seventeen white cells in ten microscopic fields, compared with the ten or eleven leucocytes normally found. An absence of "bands" or earlier forms showed the quiescent state of certain areas of the marrow, but an increase in tri-lobed polymorphs accounted for the shift to the right of the weighted mean, since the percentage of Class II neutrophiles was the same in the affected heifer as in a healthy animal. Thus:

Neutrophiles	*Normal heifer*	*Actinobacillosis case*
Class I	59.5	55
Class II	37	37
Class III	3.5	8
Weighted mean	1.44	1.53

The greatest change concerned the large lymphocytes, since there were three times the normal quantity of these circulating in the blood-stream, i.e., about 2,700 per c.mm. It is possible, of course, that the fact the infection of the tongue was actinobacillosis and not actinomycosis was responsible for the lymphatic (mononuclear) as compared with the expected neutrophilic character of the reaction. Accompanying the lymphocytosis was a triple increase in monocytes, indicating that the effects of the bacillus were not limited to a stimulation of the lymphatic system alone.

Healthy cattle aged three years have large numbers of eosinophiles (12 per cent. to 15 per cent.) but few basiphiles (0 per cent. to 1.25 per cent.) in their peripheral circulation, so that in terms of the 8 per cent. and 2 per cent. respectively found in this case, it suggests that these two functions of the marrow are interdependent, since there was a definite eosinopenia and an absolute basiphilia.

This response of the granulocytes differs somewhat from that which occurs in pyogenic infections, where there is usually complete depression of both types of cells.

Atypical lymphocytes in the form of Reider cells were seen, but if it is accepted that these are merely large varieties of lymphocytes undergoing nuclear division, this only indicates further the activity of the lymphoid system in actinobacillosis.

A few plasma cells—Türk-type—were also present, two of which were the largest and best seen by the writer in any bovine blood smear.

Only a few of the medium sized lymphocytes showed plasmosomes, but large numbers contained azur granules (or masses) and a few showed degenerative vacuoles.

Although it was not possible to carry out a total red corpuscle count, the smears prepared showed no apparent deficiency of erythrocytes, nor were there signs of anæmia or degeneration, other than anisocytosis, which, however, is a normal feature in cattle of this age. The majority of the red corpuscles were well formed with depressed centres, very few were crenated, nor were there many megalocytes. Polychromasia and poikilocytosis were absent, as were nucleated red cells, and since the hæmoglobin percentage was not lowered there was no reason to suggest that a hypochromatic anæmia was being featured.

Briefly, therefore, the findings in acute uncomplicated actinobacillosis in the bovine are :

A leucocytosis of moderate degree involving chiefly the large lymphocytes, and basiphiles, together with an absolute depression of the eosinophiles—the percentage of polymorphs remaining stationary. Anæmic symptoms are not to be expected at this early acute stage of the disease.

The response to iodine therapy was rapid, a cure being effected in less than three weeks.

Clinical Articles

A DISEASE WITH CEREBRAL SYMPTOMS OBSERVED IN HORSES IN PALESTINE

By N. FIRUN, M.R.C.V.S.

Veterinary Service, Department of Agriculture and Fisheries, Palestine.

History

POLICE horses which had been accommodated for some period (two months) in the open air were moved into abandoned insanitary stables when the rains commenced. After having been accommodated here for five days, two horses were affected with cerebral and other symptoms closely resembling those described by Cox, Philip, Marsh and Kilpatrick in the *second* outbreak recorded in their paper in the *Journal of the American Veterinary Medical Association,* entitled "Observations incident to an outbreak of Equine Encephalomyelitis in the Bitterroot Valley of Western Montana." (It should be remembered that the two outbreaks described in that paper were distinct entities, and that the authors demonstrated that the second was *not* due to the virus of Encephalomyelitis. This point is stressed in the present instance, because there is no suggestion that Equine Encephalomyelitis occurs, or ever has occurred, in Palestine.) It seems possible that the disturbance recorded in the present paper may have resulted from toxic substances present in spoiled food.

First Case

Subject.—Country bred gelding, five years old.

Symptoms.—The horse was seen three hours after the commencement of the sudden attack of illness. The animal was found lying down, and suffering from total blindness. When made to stand up it appeared as if in a trance and could not remain standing without support, continually crossing its forefeet. It could not swallow, and urinated every fifteen minutes or so. Later the horse showed a desire to keep walking forwards. When coming against any obstacle it would lean forcibly against it with its chest and head. Eight hours later improvement commenced. The horse recovered a little eyesight, and the desire to walk forward subsided. It stood firmly on its legs and drank some water, but refused any food. Recovery was complete after forty-eight hours.

This horse had no fever, respiration was normal, pulse normal and there

was no peristaltic movement. (Before my arrival an enema had been given *per rectum* by the farrier, who thought it was a case of colic. Not a drop of the enema was ejected.)

Second Case

Subject.—Country bred gelding, eleven years old.

Symptoms. — The horse was found standing in a corner with its face against the wall as if trying to push it down with the tip of its nose, making at the same time running movements with its forelegs. The horse was totally blind, and in a violent state. It was impossible to move it from the stable. After half an hour the violence subsided, and it became possible to walk outside. It had a staggering gait, and after walking some yards fell to the ground and was unable to rise again. Respirations were greatly accelerated, and from time to time it made running movements which lasted some minutes. No peristaltic movements of the bowels could be heard, and there was no temperature. After eight hours the horse was destroyed, being *in extremis.*

Post-mortem findings.—There was catarrhal gastro-enteritis with patches of acute congestion and the liver was cirrhotic.

SARCOPTIC MANGE OF THE DOG

By G. MAYALL, M.R.C.V.S.

CALLED on July 26 to see a terrier dog. On examination found the patient badly affected with mange on the head, cheeks, ears, neck, abdomen and thighs. Took some skin scrapings, and examination under the microscope revealed the sarcopt.

First Day, July 26.—Dressed all over with rape oil, liquor potassæ, turpentine and paraffin oil, and gave a full night and morning of ferri redact grs. 2, arsen. iodide gr. 1/15th. The skin dressing was to be painted on every other day with a moderately stiff paint brush.

July 30.—Visited again and dressed all over with an oily dressing—crude cod liver oil 3 ounces, pot. carb. 30 grains, paraffin oil 2 drachms, oil of tar 2 drachms, water to 6 ounces. To be applied every other day.

August 2.—Skin dressing six ounces as above supplied and pills continued.

August 9.—Found patient much improved. Scales scraped off and large bottle dressing with turpentine substituted for the oil of tar as dog seemed to resent the smell of the tar very much, although this ingredient had helped in his improvement. Protein therapy was also begun on this day and the dog was given a hypodermic injection of 1 c.c. of antibacsyn.

August 12.—Improvement continued. A further hypodermic injection of antibacsyn was given and skin dressing continued.

August 17.—A third dose of antibacsyn was given and the dog was improving daily, the irritable spots declining and the skin gaining in suppleness and cleanliness and new hair growing. The skin dressing with crude cod liver oil as a base was continued.

August 23.—Six-ounce bottle of skin dressing as before and a supply of arsenic and iron pills, and the owner considered the dog was so much better that our further personal attendance was not necessary.

September 2. — Further supply of pills and skin dressing and the dog needed no more.

The inclusion of crude cod liver oil in the skin dressing certainly seemed to be of benefit and the injection of antibacsyn helped considerably in the cure. A fish oil seems to suit these skin cases, and I remember in the old days how frequently we used whale oil as an ingredient with benefit in such, but one never seems to come across it in these days. In any case its smell was ubiquitous.

THE CASTRATION OF RABBITS WITH BURDIZZO FORCEPS

By Y. S. GRASOVSKY, M.R.C.V.S.

Veterinary Service, Department of Agriculture and Fisheries, Palestine.

YOUNG rabbits should be left with the doe until they are six weeks old in summer, or eight to ten weeks old in winter. At these ages the young should be removed to a separate run and kept together until they reach the age of three months, when the sexes should be separated. Bucks may be left together until they start fighting, when they should be put apart and those not required for breeding purposes, castrated. All bucks, unless intended as breeders, should be castrated and fattened for the table. The castrated buck grows fatter and larger and yields meat of exceptional excellence that fetches a much higher price than that of the uncastrated animal. On account of the small economic importance of each individual, the castration of bucks is destined to be practised more extensively by the fancier than by the veterinary practitioner. Hitherto, owners have practised the open wound method of castration, namely, cutting through the skin of the scrotum and pulling out the testicles. Such an operation had all chances of the usual accidents following the open wound castration, i.e., hæmorrhage, hernia, and wound complications leading in some cases to peritonitis. To avoid these accidents, and to simplify the

operation, a safer method was sought, and by using the Burdizzo forceps a safe, quick, easy and clean method was found.

The buck is secured manually by an assistant who sits and holds the animal with its back on his knees. The danger of personal injury from scratches and bites should be borne in mind and guarded against. The skin of the scrotum is manipulated for a while in cases when the buck withdraws the testicles, then one testicle is grasped with the left hand and its cord placed between the jaws of the emasculator. When satisfied that the cord is well placed, the forceps are closed and kept thus for a minute. The second testicle is then located in the same manner and the same procedure repeated. The skin of the scrotum is not severed, and there is no hæmorrhage, no fear of hernia, and very little danger of septic infection, which is very troublesome in hot climates, especially in the summer months.

The testicles swell up for a day or two and there is also some swelling of the scrotum, but the animal is not greatly inconvenienced, does not go off its food, and in a few days the swelling has disappeared.

TWO FOWL POST-MORTEMS

By G. MAYALL, M.R.C.V.S.

1—Corn Cockle Poisoning

On November 29 a Leghorn pullet was sent in for post-mortem examination. The crop was inflamed and contained a teaspoonful of liquid of the colour of weak black-currant tea in addition to being full of grain, one quarter of which consisted of corn cockle (agrostemma githago). These seeds are black or dark brown, shot-like, and kidney shaped, 2 to 3 millimetres in size and with a hump surface. The poisonous constituent is a glucoside githagin. The seeds frequently occur in the cleaning of corn and are called in the trade "blowings from wheat." The œsophagus was inflamed, the liver jaundiced, there was pericarditis and a number of soft eggs in the oviducts.

The owner had lost four birds, and being a beginner in poultry-keeping, the loss was a bad setback for him.

2—Carbide Poisoning

In February an R.I.R. pullet was sent in for post-mortem with the intimation that carbide poisoning was suspected. On post-mortem the proventriculus was brown and dry and eroded and the contents smelt slightly of acetylene.

Calcium carbide is now and then carelessly thrown aside as waste from acetylene lamps, and on account of its calcium content is attractive to the birds

and the calcium hydroxide resulting from its consumption is a tissue irritant or corrosive. Occasionally one finds the mucus membrane of the mouth and pharynx croupously inflamed.

On the Continent fatalities have been recorded from acetylene gas poisoning in geese (Kuhn). In a hen taken into the High School of the Vienna Clinique for observation on carbide poisoning, the feathers at the cloaca were broken away and bloodstained, and there was an ulcerous sore on the thigh and black spots on the skin. The bird remained a week in the clinic and laid one egg daily, and on being hard-boiled these eggs showed black streaks. The hen recovered.

REFERENCE

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Abstracts

ABSTRACT OF REPORT ON THE ACTIVITIES OF THE VETERINARY DEPARTMENT OF THE COPENHAGEN BOARD OF HEALTH IN 1937

(*Report by* H. HANSEN, *Chief Veterinary Surgeon,* E. MEILBO, *Director of Laboratory, Veterinary Surgeon,* K. SEIDEL, *Veterinary Surgeon, and* O. WINTHER, *Veterinary Surgeon*)

TRANSLATED BY F. WOLDIKE NIELSEN

Veterinary Officer, Copenhagen.

IN 1937 the milk supply of Copenhagen came from 4,442 herds, comprising altogether 76,657 cows; in addition, 568 herds, comprising 7,045 cows, have furnished milk periodically in the course of the year.

The daily supply of milk, cream, etc., and the form in which these products are distributed are shown in the table opposite, giving the averages per day in kg.

The average daily total supply of whole milk, including Jersey milk and certified milk, is 286,798 kg. Of this amount a total of 254,701 kg. is distributed as whole milk—namely, 145,788 kg. of raw milk, certified milk and Jersey milk, and 89,913 kg. of milk treated with heat in various ways. Since

November 1, 1935, all raw milk and raw cream have come from herds that have passed the tuberculin test.

Type and kind of milk	*Supply to Copenhagen in kg.*	*Distribution: As raw products*	*Distribution: As pasteurised or otherwise heat-treated*
Whole milk	267,551	130,784	48,069
Certified milk	13,534	10,502	
Jersey milk	5,713	4,502	
Whipping cream	17,785	1,639	13,130
Cream I	2,318	1,655	6,772
Cream II	544	5	704
Cream III	610	159	4,272
Buttermilk	15,638	6,210	20,584
Skimmed milk	11,277	400	33,715
Half-skimmed milk		90	2,638
Stassanised milk			39,535
Low-pasteurised milk ...			769
Sterilised cream III	12,087		15,280

The monthly veterinary examination of the herds is carried out by 128 veterinary surgeons, three of whom are attached to the large milk-supply companies, while *the others are local practising veterinary surgeons.*

Through these examinations altogether 44,457 diagnosed lesions or suspected cases have been notified. Naturally, this number exceeds the actual number of sick cows, as a cow that stays ill through several months is notified every month.

During this year veterinarians of the Board of Health have performed a total of 1,326 examinations and inspections of 1,114 herds and 212 dairies.

At various times, officers of the sanitary police and veterinarians of the Board of Health have made altogether 5,847 inspections of 42 dairies and about 2,200 milk-shops and 325 milk-carts. In 165 cases these inspections revealed defects as to maintenance of the shops, etc.

Various laboratory tests have been performed on a total of 13,306 samples of milk and cream bought in the market.

Certified milk, 2,025 samples: Less than 3.25 per cent. fat (minimum fat percentage demanded by the health authorities) was found in 2 samples; 3.25 to 3.5 per cent. was found in 103; 3.5 to 4 per cent. in 1,053; 4 to 5 per cent. in 848; 5 per cent. or more in 19.

Jersey milk, 175 samples: Less than 4.75 per cent. fat (minimum allowed) was found in 3 samples; 4.75 to 5 per cent. in 19; 5 to 6 per cent. in 138; 6 per cent. or more in 15.

Whole milk, 5,925 samples: Less than 3.25 per cent. (minimum percentage) was found in 87 samples; 3.25 to 3.5 per cent. was found in 724; 3.5 to 4 per cent. in 4,305; 4 to 5 per cent. in 779; 5 per cent. or more in 30.

Whipping cream, 1,223 samples: Less than 30 per cent. fat (minimum percentage) was found in 3 samples; 30 to 32 per cent. was found in 108; 32 to 34 per cent. in 273; 34 per cent. or more in 839.

Cream I, 1,682 samples: Less than 18 per cent. fat (minimum percentage) was found in 20 samples; 18 to 20 per cent. was found in 1,038; 20 to 22 per cent. in 467; 22 per cent. or more in 157.

Cream II, 181 samples: Less than 13 per cent. fat (minimum percentage) was found in 5 samples; 13 to 15 per cent. was found in 37; 15 to 16 per cent. in 32; 16 per cent. or more in 107.

Cream III, 1,041 samples: Less than 9 per cent. fat (minimum percentage) was found in 1 sample; 9 to 11 per cent. was found in 524; 11 per cent. or more in 516.

Export cream (sterilised cream III), 85 samples: Less than 9 per cent. fat (minimum percentage) was found in 2 samples.

Half-skimmed milk, 24 samples: None of the 24 samples showed less than 0.75 per cent. fat (minimum required).

Admixture of water was demonstrated in 34 samples of whole milk.

Dry-substance content of buttermilk: 921 samples were tested, and 15 showed a shortage of dry substance.

Examination for dirt was made on 3,735 samples at the arrival of the milk to Copenhagen (by means of Gerber's automatic filter apparatus). A number of samples showed presence of dirt in noticeable amount, on which account the veterinarians of the Board of Health notified the respective dairies and stock-owners.

Heating: 13,306 samples were examined. Forty-one samples that had been sold as pasteurised were found by the paraphenylene diamin test to be raw; 4 samples that were sold as raw had been pasteurised. Examination for illicit heating was carried out on 224 samples of whole milk, which all were sold as raw; by various tests (Weinstein's amylase test, Schardinger's test and the catalase test) 4 of the samples were found to have been heated.

Acidity: 3,735 samples of milk (whole milk, certified milk, stassanised milk and low-pasteurised milk) were tested for acidity (number of cc. of n/10 NaOH required to neutralise 100 cc. of milk), with the following result: Less than 15 cc. in 6 samples; 15 cc. in 10 samples; 16 cc. in 632; 17 cc. in 980; 18 cc. in 1,676; 19 cc. in 355; 20 cc. in 45; and over 20 cc. in 31.

Redactase and fermentation tests were made on 3,735 samples. The decolorising times were: Less than 1 hour in 42 samples; 1 to 2 hours in 39; 2 to 3 hours in 66; 3 to 4 hours in 110; 4 to 5 hours in 112; 5 to 6 hours in 204; 6 to 7 hours in 266; 7 to 8 hours in 373; over 8 hours in 2,523 samples. The fermentation tests gave the following types of coagulation: Jelly-like in

832 samples; caseous in 109; vesicular in 557; spongy in 1,941; and fluid in 296.

Bacteriological examinations: The bacterial count is estimated per cc. of milk by cultivation in 3,689 samples of whole milk, certified milk, stassanised milk and low-pasteurised milk. The dilutions of milk from which the cultures were made have usually been 1 : 100 and 1 : 1,000. In a few special cases dilutions 1 : 10, 1 : 10,000 and 1 : 100,000 have been used. The culture medium has been casein agar; occasionally also oxo-extract gelatin. Cultures on casein agar have been incubated for 2 days at 32° C.; the gelatin cultures were incubated from 4 to 6 days at 22° C.

	Bacteria Present	
	Whole milk	*Certified milk*
Under 0.1 million per cc.	611	1,578
0.1 to 0.3 million per cc. ...	349	296
0.3 to 0.5 million per cc. ...	117	61
0.5 to 0.7 million per cc. ...	50	25
0.7 to 1.0 million per cc. ...	42	13
1.0 to 2.0 million per cc. ...	51	28
2.0 to 3.0 million per cc. ...	24	22
3.0 to 5.0 million per cc. ...	24	16
5.0 to 10.0 million per cc. ...	15	3
10.0 to 20.0 million per cc. ...	8	2
Overgrown	1	8
	1,292	1,952

	Bacteria Present	
	Stassanised milk	*Low-pasteurised milk*
0.001 to 0.005 million per cc. ...	19	6
0.005 to 0.01 million per cc. ...	60	13
0.01 to 0.05 million per cc. ...	159	68
0.05 to 0.1 million per cc. ...	25	20
0.1 to 0.3 million per cc. ...	23	11
0.3 to 0.5 million per cc. ...	10	5
0.5 to 0.7 million per cc. ...	0	2
0.7 to 1.0 million per cc. ...	6	1
1.0 to 5.0 million per cc. ...	7	3
Over 5.0 million per cc.	2	0
Overgrown	2	0
	313	129

In co-operation with the veterinarians of the Board of Health, the officers of the sanitary police have made 30,156 inspections of butchers' shops, delicatessen stores, fish and game markets — respectively 8,432, 17,956 and 3,768. In this way 192 offences against sanitary regulations were disclosed. Five hundred and seventy-one samples of meat products were bought and examined especially for illicit content of preservatives. In 11 cases there was demonstrated an addition of sodium sulphite, while addition of boric acid was found in 3 cases.

IDENTIFICATION IN THE REARING OF THE DOG—ITS TECHNIQUE, USEFULNESS AND NECESSITY

Thesis for the Veterinary Doctorate (State Diploma)

By LOUIS ARTHUR DAVID

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Dedicated to the memory of his parents, wife and son; and Professors Champy, Letard, Bressou and Bourdelle.

BREEDING animals of a fixed race have their names and descent inscribed in a stud book; these animals of pure blood, when they change ownership, are often accompanied by a special paper giving their pedigree, which should be an extract from the stud book. All domestic animals have not such a book, but the offices of agricultural syndicates, committees and breeding societies make fresh ones each year and soon the lacunas will be filled up.

From these lists the breeder and rearer should seek subjects to improve his breed and to find in them a precise description which will not leave him in any doubt as to the identity of the sire and dam. The fact of appearing in these books gives to individuals and their produce a much more considerable value than to others, as well as to ensure checks on fraud, whether by erroneous register or the wording of the description to avoid substitutions. For a long time, to limit substitutions and frauds, a perfect method of identification has been needed, of sufficient exactness to guide breeders in purchasing, in the conduct of rearing by choice of progenitors, to give greater security to the buyers, to further insurance contracts and to increase guarantees of certificates of health and report, and above all to give its normal value to the pedigree as an extract from the genealogical book of the race. But this can only be obtained by a method of identification allowing one to distinguish without possibility of error one individual among others.

I. Descriptive Method.—Up to the present the only method of identification of the canidæ consisted in a description more or less detailed of the animal under all its aspects of form, colour and its particularity; this was the only official means recognised by all to identify the animal; it was the usual description of contracts (sale and insurance), of health certificates, valuations, pedigrees and stud books.

This method of description was covered by the following nomenclature:

Species.
Breed.
Sex.
Date of birth.
Size.
Coat.
1. Different particulars of colour.
2. Situation and form of spots.
3. Particulars of hair.
4. Pigmentation.
5. Characters shown of certain parts of the body (tail, ears).
6. Wounds and scars.
7. Particular marks.

Such descriptions are complicated in parts and quite insufficient. A description of the coat is almost always forgotten, measurements are almost always absent, and between adults and young animals there are often wide variations.

Any useful description should embrace two points — permanence and individuality. There is weakness and uselessness in such descriptions, and they should be made more individual.

II. Photography is not satisfactory because dogs are far more restless than bovines (M. André Leroy has done well with it in bovines); they vary in size, and the photographs are usually unicoloured.

III. Silhouettes, though useful in horses, are not very valuable with regard to the dog.

IV. Marking and Tattooing.—Marking is chiefly limited to hounds. In the army all horses are marked on the horn of the hoof. Oxen and sheep are marked by a tag or colour smudge. These different systems of marking are inapplicable to the dog. Branding is barbarous and unæsthetic. The ear tag could carry necessary details, but its inconveniences are numerous. Tags may be removed and fraudulent ones substituted.

Tattooing is less barbarous and has the advantage of being indelible. It is useful in the horse, cow and some breeds of sheep, but is not satisfactory in dogs.

New Method of Identification by the use of Prints. — These should replace all previous methods of identity as a result of their advantages, sureness of establishing identity, great ease of employment, and absolute correctness to the animal to be identified. It consists in taking a print of a definite part of the body, always the same for a decided species, and particularly of the muzzle of the canine race.

On November 15, 1922, Professor Dechambre presented to the Academy of Agriculture, under the name of M. André Leroy, a communication on the determination of the identity of bovines according to the imprint of their muzzles. This communication was based on the remarkable work of Dr. Bertillon, completed later by MM. Locard, Niceporo, Vacovitch, etc.

It is founded on the two following principles:

Permanence of the imprints.

Individuality of the imprints.

Human imprints are permanent from infancy to adult age, from birth to death.

An imprint of the thumb and four fingers of each hand is taken at the depot, and under each imprint the name of the digit is inscribed, along with a photograph of the individual concerned. Galton has calculated that the chances of meeting with two identical imprints is one in sixty-four millions.

Petersen, of the State of Minnesota, in 1922 described a similar process of identification very analogous to Bertillonage, and applicable to cattle, in the *Journal of Dairy Science.*

The method with cattle is as follows: The muzzle of the animal to be identified is suitably dried with blotting paper—an indispensable precaution without which the success of the final operation is impossible. One blackens the dried part with a roll of gelatine smeared with thick printing ink. It is sufficient then to apply leaves of white paper, pressing them lightly with the flat of the hand, to obtain as many imprints as one desires. The imprints are big and easily discerned, and there is no need for photographic enlargement.

A modified form of imprint is now used by Petersen. The method has been systematically used in Seine-et-Oise for the identification of Normandy cows under dairy control procedure. The method can also be used in bovines.

Nasal imprints of the dog are taken in the following way: Immediately after inking, a supple piece of smooth white paper is held in the palm of the right hand, with the four fingers folded (the thumb free and extended), and apply moderately on the snout the part of the paper corresponding to the fleshy base of the thumb, and press. By releasing the paper from the hand which holds it and renewing the operation, one can obtain several prints; the first is often too inky, the second is almost always good, the others are

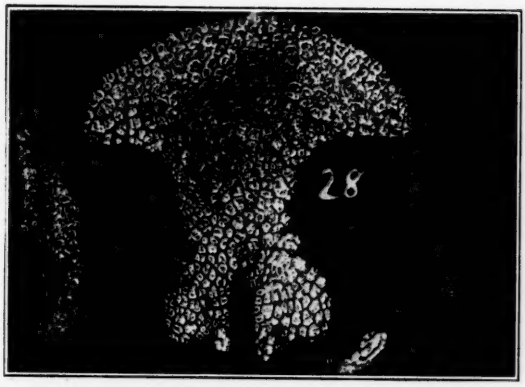

FIG. 1.—A Canine Nose Print.

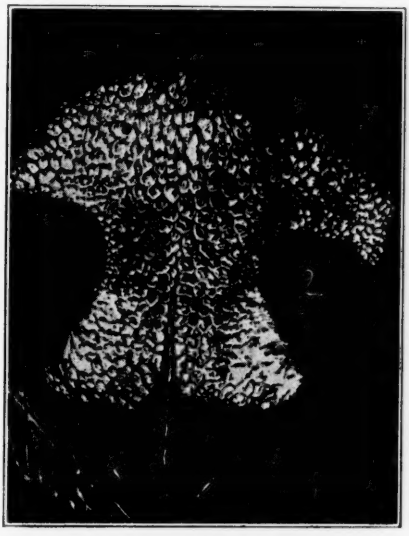

FIG. 2.—A Canine Nose Print.

[*To face page* 152.

more or less faint and the last is almost illegible, but one obtains at least two or three very good images.

We use thick black ink or printing ink. We do not apply it direct to the muzzle but spread the ink on a special intermediary surface in a very thin and regular layer. This surface is formed by a gelatinous plan equivalent to the ink roller of the printing machine; it has a glossy surface which deposits on the snout a thin pellicle of ink exactly like that of the printer's roller. For all our experiences we have chosen gelatine, a very malleable body very easily modelling by slight pressure.

By a particular milling we have rendered the surface of the gelatine slightly arched, which allows of the inking of snouts slightly concave, as happens in bulldogs, Pekingese, Japanese and Bruxellois, etc. After use the roll is put into a large tube in which formalin vapours circulate to prevent all danger of infection, the nose of the dog being the principal port of entry of infections.

Before taking an imprint the nose of the dog must be carefully dried with cotton wool or blotting-paper. Drying is very important for the success of a print.

Apart from the first process, by which a direct print of the snout is obtained, there is a second indirect process by which the images may be transferred to another paper or glass.

Description of a Nasal Imprint.—A nasal imprint is an image in black on white. The form generally resembles a section of a mushroom (agaric, for example), as a vertical stalk passing from its foot to its middle. The section presents at its upper part the cap carried by its foot, which itself spreads out inferiorly into a rounded mass.

In the nasal imprint the cap at the summit of the snout is prolonged on each side by the alæ of the nostrils; at the foot is the nasal partition, divided in its middle by the median line and terminated inferiorly by a lozenge-like enlargement as a flattened stanchion.

The imprint is made up of an agglomeration of irregular blots or spots, rarely simple, oftener composite, disposed after each other, following a certain orientation. For certain spots the interior disposition often takes on a special orientation different from the general orientation of the spots.

The spots present different dimensions, forms and dispositions in the same imprint. It is in the cap that one finds the most voluminous and differentiated spots; it is there that they present a well-defined orientation.

There exists a median vertical line dividing the print into two equal parts; it corresponds on the snout to a deep ridge disappearing at the cleft of the mouth and directed towards the summit. This ridge is more or less long; it always exists, but may be very short and may also traverse the whole of the print in dogs with a bifid nose. This median line may be complete or interrupted and is always rectilinear, but often deviates to the right or left,

and this deviation is due to unequal pressure by the hand when taking the print. Secondary smaller lines occur at the foot of the print; they correspond to little ridges plainly visible to the naked eye, which have a tendency to become deeper with age; they are produced by the action of the orbicular muscles of the lips; they do not always exist identically.

The spots vary in size and shape, but take on a more or less general geometric and irregular shape, from a triangle up to a polygon, with numerous sides. Some have their edges rounded and projecting, others plainly rectilinear.

In dogs that are ill (eczema, tumour, grave acute affections), after pneumonia, for example, the spots are empty of their substance, split up and only a third or a tenth of the normal size. At the foot of the print the spots change direction: they form a lozenge-like cluster, the upper ones directed towards the cap, crossing or not, the lower descending to the median line, parallel to the lower edge of the foot of the print, and in the middle of the lozenge the lines form two fans, opposed at their edge. This description applies to the greater part of the prints, but is not constant and presents some differences in one or several of its parts. This cluster seems to divide the print into three parts:

1. The upper part of the superior angle at the summit of the print.
2. The lozenge so-called, or central part.
3. The inferior part of the inferior angle of the lozenge at the base of the foot.

In Judging Identity

1. Two prints must be taken and compared (the initial one and the present one), and these should show identity of constitution (spots and ridges).
2. Identity of position.
3. Identity of form.
4. Identity of orientation.
5. Identity of proximity.

Spot marks. Proof of triangle.

Use of Nasal Imprints

Prints may be kept in the archives of canine societies and the nasal imprints of young dogs supplied with their pedigrees.

Adult prints required with pedigrees should be classified by themselves for comparison with imprints of the pups.

The prints are useful when giving certificates of health (c.p. sick dogs), for the avoidance of fraud and in municipal by-laws relating to lost dogs, especially when no collar is on the dog. War dogs may come under survey by nasal imprints.

The verification of the identity of a dog by its pedigree and the verification of the pedigree may be established by the prints.

Seventeen letters of the alphabet will serve for listing of the prints, omitting G, H, J, K, Q, X, Y and Z.

They make search easy, each print should give :

1. The breed.
2. The order number of the print.
3. The sex and one of the big divisions of the classification.

ANATOMO - PATHOLOGIC AND MICRO-BIOLOGIC RESEARCHES ON TUBERCULOSIS OF THE DOG

By M. MIHAILESCU, A. LUPU and V. TOMESCU

THE above authors have conducted close and comprehensive research into 20 cases of canine tuberculosis which have been autopsied in the laboratory of pathological anatomy and microbiology of the Faculty of Veterinary Medicine of Bucarest.

The primary focus of tuberculosis in the dog as studied by Nieberle answers to the same conditions as in the case of human tuberculosis. It is isolated and always accompanied by tuberculisation of the regional glands. It may be situated in the throat, lung, intestine and skin. It may be complete, that is to say, a tuberculous production both at the point of entry of the microbe and the regional glands or incomplete when only the regional glands have reacted to the tuberculous infection.

In spite of all these resemblances between the primary tuberculous focus of the dog and man there is nevertheless a difference between them; the primary focus in the dog presents a cellular productive character, whilst that of man shows a necrotic character. In the dog the same thing is noticeable in the lymphatic glands where necrosis and lymphocitary infiltration are exceptional.

As regards the frequency of the primary focus in opposition to Nieberle, who found it more frequent in the lung than the intestine, we have found it in equal proportion in both. It is exceptional in the throat and skin. In seven cases we have found the primary focus in the apical lobe, cardiac lobe and lobe azigos.

The most frequent form of pulmonary localisation as a result of primary infection has been miliary tuberculosis of vitreous, greyish, hard consistence

with tubercles little numerous and disseminated only in some lobes. There is no caseous lobular or lobar form in the dog.

In our 20 cases two only have shown tuberculous lesions on the serosæ. The frequency of the localisation of the tuberculous processes has not been the same for all the serosa; the pleura has been affected six times, the pericardium seven times, the abdominal serosa eight times. The localisation in all the serosa has only been found once. The various aspects have been diffuse, nodular, plaques and conjunctive excrescences.

An interesting form of localisation on the abdominal serosa has been the production of a massive globulous, tumour-like production of the size of an egg to that of a fist of hard, fibrous consistence at the periphery with a soft centre.

Although the lymphatic system contributes in a great measure to the spread of tuberculosis in the body, we have not found any localisations of the tuberculous process in the lymphatic vessels themselves.

Tuberculous localisation in the kidneys is frequent; we found nine cases out of 20.

The spleen has generally been of normal aspect even in cases of generalised tuberculosis.

According to morphological, cultural and pathogenic characters the bacilli found belong to those of the human type.

General Conclusions

1. As regards the frequency of tuberculosis among dogs of the town of Bucarest the malady is most frequent among dogs which live in contact with man. Among vagabond dogs the number affected is almost insignificant—one dog out of 6,000 autopsied in the public service of the town.

Frequency is not ascending or descending. For example, we have had nine tuberculous dogs in 1934-35, two in 1935-36, four in 1936-37, and five in 1937-38. These tuberculous dogs are comprised in an approximate total of 1,000 dogs autopsied in the Laboratory of the Faculty of Veterinary Medicine of Bucarest and correspond hardly to 2 per cent..

2. The anatomo-pathological lesions have a productive character often so much exaggerated that it is possible to mistake them for neoplasms. All the same, one meets also with exudative reactions; in the pleural and pericardial serosæ and even in the lung one sometimes encounters near productive reactions serous, serofibrinous and even sero-purulent exudations.

What characterises tuberculous lesions of the dog on microscopic examination is the cellular, epithelioid reaction which depends on lymphocytic peripheral infiltration; after that the rarity or absence of giant cells of the Langhans type but the frequency of syncytial cells, the rarity of calcareous infiltration, the existence of a fibrous capsule and of vessels of neoformation in

the tubercle. We may add that in some cases (kidney, lung) we have found tubercles without capsule.

Among tuberculous foci, one discerns follicles, miliary tubercles and quite large tuberculous production of big tubercles constituted in the cortical zone by a conglomeration of tubercles separated by conjunctive fasciæ but presenting at the periphery a common conjunctive capsule whilst the milieu is only a necrotic mass in which one often observes calcareous deposits in the form of small granulations or islets. The miliary tubercles and the conglomerates of tubercles may or may not present central necrosis and fibroblastic peripheral capsules.

3. The primary focus according to the principle of *Ranke-Nieberle* has been found eight times in the intestine in an incomplete state (the tuberculous process only involving the mesenteric and portal glands) and once in a complete state, when at the penetration of the bacillus of Koch in the intestine, a fibro-careous tuberculous lesion is produced which involves all the thickness of the organ.

The localisation of the primary focus in the lung may perhaps be admitted in five cases of "welding" of the perichondrium with the cardiac lobes and azigos. In all these cases the primary focus has been complete for the regional glands presented, also the tuberculous lesions. The fibrocareous productions developed on the serosæ and in general the productive character of the tuberculous lesions is a proof of the resistance of the organism of the dog against tuberculous infection. The tissues of the dog react rather towards the body of the tuberculous bacilli than to its toxin. The progress of tuberculous infection takes place a short time after infection, but it is slow, which explains the rarity or absence of giant cells. The organism of the dog is susceptible to tuberculous infection, but it is more resistant than man and ox.

4. The participation of different organs in the tuberculous reaction is not the same; the following graduation occurs: lymphatic glands, serosa, liver, lungs, kidney, spleen and, least affected, the myocardium. We have not met with tuberculous lesions in the periosteum, bones, skin and in the nerve substance.

5. Dissemination of bacilli takes place through the lymphatics, blood, and by continuity (frequent lesions serosæ, liver and kidneys).

6. Open tuberculosis possibilities are not numerous; elimination of bacilli from the lungs is only possible in the case of cavernous type (rare in the dog) by the skin, and kidney in tuberculous pyelitis (rare in the dog).

7. We have encountered ærogenous infection in an equal proportion to enterogenous infection.

8. Bacilli of Koch have been in evidence in all the tuberculous lesions—variable in number of the kind that can be isolated directly or indirectly by inoculation of guinea pigs.

The tubercle bacilli found correspond in all particulars to those of the human type.

This article is illustrated in *Arhiva Veterinara* with 16 beautiful illustrations in the text.

Observations on a New Test for the Presence of Mastitis in Milk

THE addition of 2 c.c. NaOH to 10 c.c. of the milk of cows suffering from mastitis, and the subsequent beating of the mixture with a glass rod, leads to the formation of a viscid mass. The reaction takes place immediately and at room temperature. The test fails, however, if the mixture is brought to boiling point.

The test becomes positive before the brom-thymol blue and strip cup tests, and is seen most markedly during the acute stage of the infection. It is invariably negative in the milk of uninfected cows.

If the mixture is held at room temperature, or 37° C., it develops a bright cherry-red colour, probably due to the presence of acetyl amines derived from muco-proteins.—J.P.

Canadian Public Health Journal, January, 1939, Vol. 30.9.

Rectal Prolapse in Swine

THE following method of treating rectal prolapse has been given an extensive trial with completely satisfactory results.

The affected animal is restrained, and the exposed mucous membrane of the everted bowel scraped. It then promptly reverts to the normal position. —J.P.

Veterinary Medicine, Chicago, March, 1939.

Treatment of Mange by Chemical Reaction

THE affected animal is clipped and thoroughly cleansed with warm water and soap. After 24 hours a 60 per cent. aqueous solution of sodium hyposulphate is applied vigorously with a brush and the animal allowed to dry. After two or three hours a white powder (crystallised hyposulphate) appears on the surface of the skin.

Using the same brush, a 5 to 10 per cent. solution of hydrochloric acid is then applied in a similar manner. From two to three hours later the treatment is repeated. In severe cases three treatments are given. Three days after the final dressing the animal is washed with soap and water, and the treatment is thus completed.

Demianovitch, Inst. Veterinary Dermatology, Moscow.

The mechanism of this chemical reaction is as follows:

The interaction of $Na_2S_2O_3$ and HCl results in the liberation of SO_2 and S, which are the active agents in the treatment, thus:

$$Na_2S_2O_3 + 2HCl = 2NaCl + H_2S_2O_3 \qquad 2NaCl + H_2SO_3 + S$$

$$2NaCl + H_2O + SO_2 + S$$

Following this series of reactions on the skin of the animal, atmospheric oxygen and moisture come into play, bringing about a new set of reactions:

1. $S + O_2 = SO_2$; $SO_2 + H_2O = H_2SO_3$: $H_2SO_3 + S = H_2S_2O_3$
2. $H_2S_2O_3 = H_2SO_3 + S$: $H_2SO_3 = H_2O + SO_2$

These reactions continue on the surface of the skin for two to three days, at the end of which all parasites, *as well as all eggs,* are destroyed.

Correspondence

APPEAL ON BEHALF OF THE REBUILDING AND ENDOWMENT FUND OF THE ROYAL (DICK) VETERINARY COLLEGE, EDINBURGH

To the Editor, THE VETERINARY JOURNAL.

DEAR SIR,—Knowing the great interest which you have always taken in national well-being, and the great influence which your paper enjoys among the landowning and agricultural community, I am sending you a further appeal which is now being issued to raise funds for the extension of this College.

You are probably already aware that the original appeal was launched by the late Principal, Dr. Bradley, in 1936, to raise a sum of £40,000, to extend the existing main block of the College, so as to provide more adequate laboratory and teaching accommodation for the greatly increased numbers of students which now have to be provided for. The numbers have, in fact, risen from less than 150 in 1931 to about 400 now, and when the College was designed before the Great War were even less. Moreover, the course of training has been extended from four to five years and a great deal has been added to the field of study which has to be covered in that time.

Consequently far more accommodation and facilities are now needed,

and as Dr. Bradley's mantle has fallen on me it is imperative that I should make every possible endeavour to raise funds so as to make provision for a proper course of training.

The detail given in the appeal shows that only about half of the £40,000 originally asked for has so far been raised. This has been spent as it has become available, and, with certain other funds, has made it possible to provide satisfactory accommodation in the Anatomy and Pathology Departments, but the provision for other departments, particularly Physiology and Animal Husbandry, is still most inadequate.

That proper provision for veterinary training is essential to the satisfactory development of agriculture, particularly in such a country as the United Kingdom, where the return from livestock and animal products is far greater than from cash crops, is now recognised by Government and by the public, and it is perhaps not necessary for me to dilate further on that. The points that I would particularly draw attention to are:

(1) Though an adequately staffed and equipped College, comparable with those of other countries, has now been provided in London, that College cannot train more than a fraction of the veterinary students required for this country, and, owing to lack of funds, the provision for veterinary training at other centres is very inadequate;

(2) Provision for proper training in veterinary science is the cheapest and best form of insurance against the tremendous loss, estimated at £1,900,000 a year, from disease alone, which at present occurs amongst the livestock of this country due to disease, defective development and inefficiency;

(3) Any contributions made to this fund at the present juncture would be doubly effective in that Government has promised to provide £1 for every pound subscribed to the original £40,000 scheme;

(4) Subscriptions to this fund would be a very satisfactory way of providing a lasting memorial to the 37 years of devoted services which the late Dr. Bradley rendered to this College and to veterinary education and the best possible means of carrying on his aims and ambitions;

(5) The students at this College come mainly from the North, about 50 per cent. from Scotland and the balance from the North of England and North Ireland.

Yours faithfully,

A. OLVER, *Principal.*

The Royal (Dick) Veterinary College,
Edinburgh.

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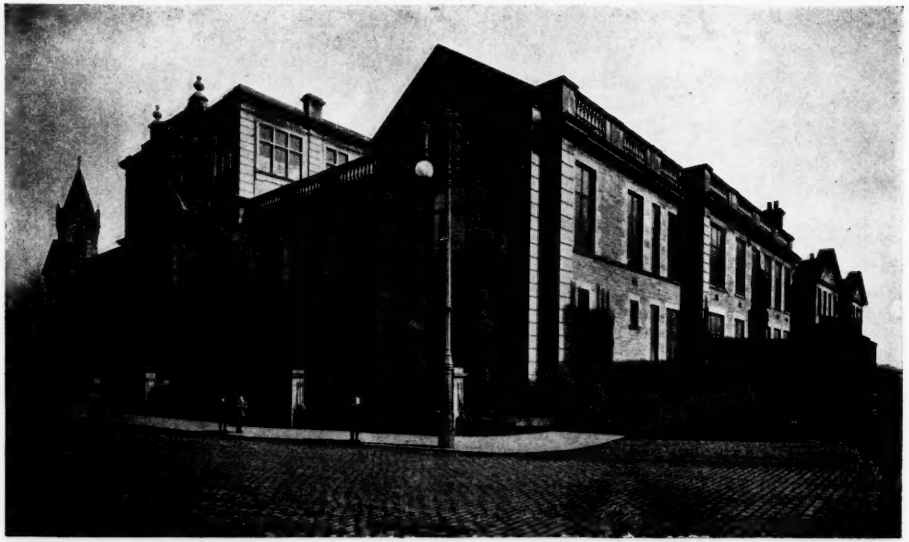

The Royal (Dick) Veterinary College. Corner view showing the main entrance and that to the Animal Clinic and Infirmary on the right.

ROYAL (DICK) VETERINARY COLLEGE
EXTENSION FUND

Immediate need £6,000 to complete extension now in progress.

This would secure an equivalent grant from Government.

On behalf of the management we desire again to bring to your notice the need, which is now more than ever pressing, for funds to extend and provide additional facilities at the Royal (Dick) Veterinary College, Edinburgh.

Two appeals have been issued, but, including the Government contribution of £1 for £1 subscribed, less than half the £40,000 required for the original extension scheme has been raised. Meanwhile a Government Committee (the Loveday Committee on Veterinary Education), after reviewing the whole position, has recommended for the Royal (Dick) Veterinary College an expenditure of £56,000 additional to the above sum.

A total of £76,000 is thus required, but in regard to the £20,000 which is still wanted to complete the original £40,000 scheme, the Government has undertaken to contribute £1 for £1 subscribed, and the work could be much more economically and satisfactorily carried out if funds were available to complete a block at a time instead of in small sections, as has hitherto been necessary owing to lack of funds.

Well-wishers in the South have subscribed more than £120,000 to rebuild the London Veterinary College, for a similar number of students. Moreover, contributors to this fund, by making better provision for veterinary education in Scotland, would help in the cheapest and most effective way to control the myriad diseases which are estimated to cause an annual financial loss of nineteen million pounds (£19,000,000) to producers of livestock and livestock products in the United Kingdom.

Is it too much to hope that those concerned with the production and care of animals in Scotland, the North of England, and Northern Ireland will subscribe the very much smaller amount which is asked for in this appeal, to place the Edinburgh College in a position more in accordance with modern requirements, and thereby help to protect themselves from loss and their animals from much avoidable suffering?

For example, if 100 of the 500 or more veterinary surgeons in Scotland, Northern Ireland, and the four Northern counties of England would undertake each to raise £50, in his or her district, the completion of the main building would almost be provided for and the present congestion greatly relieved.

May we appeal to all who are interested in the welfare of animals, and particularly to the alumni of the Edinburgh Colleges, to make a sustained effort to raise the money required; by organising animal shows, cinema performances, bridge drives, dances, etc., in aid of the fund, and to endeavour to induce the more wealthy of their clients—who are the main beneficiaries

from the activities of the College—to subscribe for the better protection of animals from disease and suffering?

The position of this College is explained in the explanatory and historical notes which are printed below.

T. Hudson Beare, *Chairman.*
A. Olver, *Principal.*
Robert Macdonald, *Treasurer.*
A. C. Doull, *Secretary.*

Explanatory and Historical Notes

In 1936, and again in 1937, public appeals were made to raise £20,000 which, with an equal sum contributed by Government on a £ per £ basis, was required for a £40,000 scheme which had been approved to carry out some most urgently needed extensions of the existing main buildings of the Royal (Dick) Veterinary College.

Somewhat less than half the required amount has been raised, and is being spent, but the great increase in the number of students—from less than 150 in 1931 to over 400 now—and the recent extension of the minimum period of study from four to five years has made the position extremely critical. Indeed, until more accommodation, staff, and facilities are available it will not be possible to carry on satisfactorily the great aims of its far-seeing founder, William Dick, to provide at moderate expense a thorough course of training abreast of the scientific knowledge of the time.

The present may not be a favourable moment at which to issue a further appeal, but the position is such that it would not be justifiable to delay. Moreover, provision for up-to-date veterinary education should be regarded as a most important measure of defence, seeing that it would help to establish livestock production on a sound footing and provide a most valuable reserve of food, of high nutritive value, while building up much-needed fertility in the soil.

But to make the most of livestock, intensive unnatural methods of feeding and management are now very widely practised, to the great detriment of health, fertility, and stamina, and the Minister for Agriculture has recently stated that one of the greatest handicaps which has to be faced is the heavy annual loss caused by disease. Consequently it is imperative to give every possible help to stockowners to maintain their stock in health, and though the science of bacteriology has enabled great advance to be made in our knowledge of the organisms which cause bacterial disease, there are innumerable problems still to be solved. Recent research has in fact shown that lack of resistance to infection, due to faulty feeding, breeding, or management, or of essential minerals or other factors in the diet, is a most important cause of disease and inefficiency of stock all over the world.

Façade of the Royal (Dick) Veterinary College, Edinburgh.

Thus one of the great tasks of Veterinary Colleges to-day is to pay increasing attention to the effects, on health and development, of modern intensive methods of animal husbandry and of the present great variety of foodstuffs, many of which are highly artificial. For such work, veterinary practitioners must be specially trained, and must be in a position to arrange for scientific investigation, at a college or similar institution, of the various factors which may affect the health and efficiency of the particular class of stock concerned.

With such considerations in view an expert Government Committee (the Loveday Committee) has recently examined the position of veterinary education in this country and, after seeing all the colleges in the United Kingdom and a number in Europe, has recommended for the Royal (Dick) Veterinary College a total capital expenditure of £96,000, including the above-mentioned £40,000 scheme, in order to provide more adequate accommodation and facilities.

This is not a large sum compared with what has been spent on rebuilding the London Veterinary College (over £300,000) or on the majority of European Colleges, and is a very small premium to pay for the great assistance, direct and indirect, which a properly equipped and staffed veterinary college in Scotland could give to stockowners.

But up to the present rather less than £20,000 has been raised, including the contributions received from the Government, the Highland and Agricultural Society, Edinburgh City, and other public bodies, and a total of at least £76,000 is still required to place the Edinburgh College on a reasonably satisfactory footing. This may seem a large sum, but it is less than one five-hundredth (1/500th) of the estimated annual return (£30,000,000) from livestock in Scotland alone. Moreover, all the money would be spent for the benefit of students and the better care of animals—particularly in Scotland and the North of England.

Further, it may be permissible to point out that British stockowners owe a great debt to the veterinary profession of this country for having—during last century—stamped out and since kept out, such highly contagious fatal diseases as cattle plague, glanders, rabies, and pleuro-pneumonia of cattle, which formerly ravaged this country, and some of which still exist on the Continent. Indeed, it is one of the ironies of fate that had they been less successful in keeping this country free of such plagues it would long ago have been found necessary to make more adequate provision for veterinary work and training. Nevertheless, the profession has always shown itself willing and anxious to foster any measures likely to prove of real benefit to animals, and to give free advice and treatment to the poor.

Comprehensive teams of highly trained workers and more and better accommodation and facilities are thus essential at Veterinary Colleges and similar institutions, to carry on the continuous basic study which is required

of health factors and of diseases which are still imperfectly understood, such as tuberculosis; mastitis; contagious abortion; rickets and similar conditions; a number of diseases of sheep, pigs, dogs, and poultry, such as scrapie, pneumonia in young pigs, canine hysteria, and fowl paralysis; and a host of parasitic infestations, as well as a great number of nutritional and similar disorders—many of which appear to be aggravated by modern intensive feeding, breeding, and management, or by defects in diet due to progressive exhaustion of the fertility and mineral constituents of the soil.

To provide for all this and the proper teaching of students the total of £76,000 recommended for this College by the Loveday Committee is not at all too much, but to raise it will take time. Meanwhile, the students must be properly taught, and if £6,000 could be obtained at once — from private sources—arrangements could be made, with the promised Government contribution of an equal amount, to complete the £40,000 scheme and so relieve the present extreme congestion.

The Royal (Dick) Veterinary College has a tradition second to none; a devoted though very limited teaching staff; a good if restricted site; and the nucleus of a fine set of buildings. What is lacking is financial support from the interested public, such as any large business organisation would provide for the systematic study of current problems of animal health and animal husbandry; in order to reduce the huge amount of preventable loss and animal suffering which is caused by disease and unthriftiness.

Is it not possible to find a few munificent benefactors willing to subscribe this £6,000, to provide more adequate accommodation at this College—half of whose students come from England or Northern Ireland—and that interested business organisations, stockowners, animal lovers, philanthropists, and the alumni of the Edinburgh Colleges will collaborate in a sustained effort to raise the further £56,000 which is required, viz.: (1) £20,000 to establish a Field Station and Hospital, and (2) £36,000 to rebuild the Clinical Block and provide better accommodation for students—men and women? All this is essential to provide in Edinburgh a reasonably well but not extravagantly equipped veterinary college, such as at present does not exist anywhere in the North, and it is suggested that a few who are particularly interested might undertake the completion of the main block (£6,000) or the establishment of a Field Station, or might subscribe £1,000 each and become Vice-Presidents with a view to taking an active interest in the College.

Historical (Extracted from the "College Calendar")

Prior to 1823, Scotland possessed no Institution devoted to the teaching of veterinary science; nor was it possible to obtain in this country any Veterinary Diploma or licence to practise.

In the year mentioned, the Highland and Agricultural Society of Scot-

land, recognising the desirability of promoting instruction in veterinary subjects came to an agreement with William Dick, under which the present Institution was founded. Premises in Clyde Street were secured, and from this nucleus, by the construction of lecture rooms, museum, and hospital, a centre of veterinary education in Scotland was developed.

The undertaking from the outset was attended with marked success; the number of students rapidly increased, and in the year 1827 a Board of Examiners was appointed by the Highland and Agricultural Society. Students who, after a prescribed period of attendance at the College, were able to satisfy the examiners of their proficiency, received a certificate setting forth that they were qualified to practise the veterinary art.

New members were added to the Educational Staff, and the course of instruction was, from year to year, rendered more complete, while the premises were extended more than once in order to cope with the demands for increased space for classrooms and hospital accommodation.

In the year 1844 the Royal College of Veterinary Surgeons was incorporated by Royal Charter, and under the Charter of Incorporation, Professor Dick's College was affiliated to it.

In terms of an agreement between the Royal College of Veterinary Surgeons and the Highland and Agricultural Society, the latter body, in 1881, ceased to hold examinations, and by the Veterinary Surgeons Act, which was passed in the same year, the Royal College of Veterinary Surgeons was constituted the only body granting diplomas licensing to practise veterinary surgery. The present course of instruction in the College is, therefore, based on the examination requirements of the Royal College of Veterinary Surgeons, to whose diploma of Membership (M.R.C.V.S.) students are entitled on the completion of their course, subject to their having passed the qualifying examinations.

William Dick constantly developed the resources of his College with a view to imparting a sound *theoretical,* combined with an extensive *practical* knowledge, and his efforts were rewarded by the widespread fame of the Institution. He died in 1866, having achieved more than any other single individual towards raising into importance the position of veterinary science in this country.

Not only did he, by his labours during his lifetime, contribute greatly to the advancement of veterinary knowledge, but he personally accomplished what, in other countries, is undertaken by the State. At his death he endowed the Royal Veterinary College which now bears his name.

The centenary of the foundation of the College was celebrated on the 27th and 28th November, 1923, when Sir John M'Fadyean, LL.D., B.Sc., M.R.C.V.S., delivered a William Dick Oration, His Grace the Duke of Atholl, K.T., as President of the Celebrations, being in the chair. In connection with the Celebrations also, Dr. Theobald Smith, LL.D., M.D., of the Rockefeller

Institute for Medical Research, Princeton, New Jersey, U.S.A., delivered an address in the University of Edinburgh on "Some Biological and Economic Aspects of Comparative Pathology."

As a permanent memorial of the occasion, an influential and representative Committee decided to found a Centenary Post-Graduate Fellowship, particulars of which are given elsewhere in this Calendar.

Up to the year 1906 the Town Council of Edinburgh, as Professor Dick's Trustees, carried on the College with the funds left by him, supplemented by the fees of students and the income from the College practice. In 1906 the College was incorporated by Act of Parliament, under the name of the Royal (Dick) Veterinary College, and since that time has been administered by a representative Board of Management. A sum of £15,000 was handed over to the College by the late Mr. Alexander Inglis MacCallum, J.P., M.R.C.V.S., for the foundation in the College of a Chair of Pathology and Bacteriology; and certain funds left by the late Miss Mary Dick, amounting to about £24,000, have been applied for establishing a Chair of Physiology in the College, and a Lectureship in Comparative Anatomy in the University, open to the students of this College. The College being recognised as a Central Institution by the Scottish Education Department, grants towards maintenance are given annually by the Department of Agriculture for Scotland. The Magistrates and Town Council of Edinburgh for many years have made an annual grant for the same purpose.

On the 5th October, 1934, His Majesty King George the Fifth signed an Order in Council, whereby the College was affiliated to the University of Edinburgh.

Reviews

Index of Diagnosis (Clinical and Radiological) for the Canine and Feline Surgeon; with Treatment. By HAMILTON KIRK, M.R.C.V.S. Price 30s. net. London: Baillière, Tindall & Cox.

A unique book. The author has stated that his preliminary concern is to aid the practitioner in the difficult field of differential diagnosis.

He has produced an index of symptoms and sets out the possible causes and the significance of departures from normal. To attain this end signs and symptoms have been arranged in alphabetical order. As each comes under review, such as dyspnœa enlargement of the abdomen, convulsions, etc., the various probable causes of such conditions are subjected to a critical analysis. This analysis takes the form of a discussion on the various causes of the

symptoms observed. It will be seen that the author has reversed the procedure which is followed in the standard textbooks.

As one peruses the pages one is intrigued by the method adopted and inclined to ask: "Why has this not been done before?" Special mention should be made of those parts which are devoted to X-ray diagnosis. It is dealt with in a masterly fashion.

The book is one of 540 pages and contains 287 illustrations, nearly half of which are radiographs. Probably there is no textbook which contains such a wealth of this material, a feature which must prove of the utmost value to the practitioner. The index and the cross references throughout the book are good.

The paper used has an art finish and the binding strong and handsome. Major Kirk and his publishers are to be congratulated on producing a work which cannot fail to be of great assistance to the practitioner.

Avian Tuberculosis Infections. By WILLIAM H. FELDMAN, D.V.M., M.S. Pp. ix + 483. Illustrated. Price 31s. 6d. London: Baillière, Tindall & Cox, 1938.

This important monograph is an outstanding contribution to science and one to be read by all interested in the general subject of tuberculosis. It contains chapters on the avian tuberculosis infections of chickens, birds other than the domestic hen, cattle and pigs, laboratory mammals—and finally of man. The author is Associate Professor of Comparative Pathology, Mayo Foundation for Medical Education and Research, University of Minnesota, and an expert where avian tuberculosis (in all its aspects) is concerned. It is probably no exaggeration to suggest that Dr. Feldman's knowledge of the pathological histology of avian tuberculosis infections is greater than that of any other living person, and therefore the portions of each chapter relative to microscopic anatomy are masterly, as is the general treatment of the whole subject. At the end of each of the 13 chapters there is a fairly full bibliography—in all, several hundred references are quoted, including many from English journals. The subject matter is necessarily voluminous, therefore in the opinion of the reviewer the book would be improved if a short summary were inserted at the end of each chapter.

In one sense the disease in chickens is comparatively new in the United States, for the first report seems to be that of Bray in 1896; five years later it was reported by Harrison in Western Ontario, Canada.

Feldman is of the opinion that *adult* poultry are relatively immune, for he considers that most cases of tuberculosis in older birds "represents a process that began many months or even years previously." Contrary to Calmette, he does not consider the organism mobile, nor that reproduction is accomplished other than by simple fission, whilst the existence of a filtrable phase in the life

cycle of the organism is left as "still an unsettled question." The acid-fast property of the bacillus is stated to be due to an unsaponifiable wax which forms approximately 70 per cent. of the total lipoids and which bears considerable resemblance to that obtained from the Timothy grass bacillus.

It is interesting to note that Feldman considers the characteristic gait of the affected chicken to be due to involvement of the bone marrow rather than to a tuberculous arthritis which, from the writer's experience of the disease in this country, is quite a correct conclusion. However, it is unfortunate that this chapter on diagnosis makes no mention of blindness as an important symptom, yet it suggests that "vomiting may be noted." Also, there must be few experienced pathologists who will have any difficulty in differentiating blackhead, fowl typhoid, aspergillosis, or leukosis from avian tuberculosis. Feldman considers that tuberculous involvement of the ductless glands of the cervical region is of frequent occurrence and gives the incidence of infection of the thymus glands as high as 9 per cent, which is no doubt of great interest in view of the normal involuted appearance of these glands at maturity. Apparently there are no records of tuberculous infection of the pancreas or of the C.N.S., yet lesions on (or in) the cerebrum may be induced experimentally. (Figs. 66 and 67.)

The chapters dealing with the pathogenicity of avian tubercle bacilli for cattle and swine are full of valuable information and contain many useful photographs of histological sections of essential importance to those interested in the comparative pathological viewpoint.

Throughout the whole text there are over 100 illustrations, one of the most interesting being that of a cross section of a portion of a wattle showing the reaction following the injection of tuberculin in a positive subject. In this connection, Feldman agrees that "there is usually no correlation between the degree of the local reaction and extent and character of the tuberculous lesions present."

It is known that there are quite a number of records of infection in man associated with the avian tubercle bacillus, but as the result of a very careful survey of these and of the available literature, Feldman states that there are far fewer than generally believed (probably not more than 13 in all), partly because of the publication of a large number of supposed cases in which the diagnosis has been little more than a presumption. A similar study by the author concerning the relationship between Hodgkins disease and tuberculosis indicates that there is "a formidable argument against the avian tubercle bacillus being a provocative agent" in this disease, but it is concluded that "it would probably be unwise to maintain that the question is settled."

Dr. Feldman is to be heartily congratulated on having achieved with distinction the formidable task of reviewing adequately the whole subject of avian tuberculosis infections, and the book is to be recommended most heartily to all veterinarians and students of comparative pathology.

Research Work into Sheep and Lamb Diseases (Alan Duke of Northumberland Memorial Fund). By W. Lyle Stewart, M.R.C.V.S., 1939.

This little booklet of 33 pages is an account of the technical work carried out by the staff of the Veterinary Branch of King's College, Newcastle-on-Tyne into sheep and lamb diseases. It is the fifth Report of the Management Committee.

The diseases further investigated and explained include lamb dysentery, pulpy kidney disease, braxy, pustular dermatitis, worms in sheep and moss staggers. For all these maladies appropriate remedies are indicated, results from which have saved many ovine lives and been very encouraging. Moss staggers occurs in in-lamb ewes two to three weeks before lambing is due to commence, and the treatment has been by glucose-insulin-calcium or calcium alone injections, investigations having shown that both hypocalcæmia and acetonæmia occur in this disease. In a number of cases the injections have produced very good results.

Pregnancy disease of ewes, the control of sheep ticks, border pining and silage on hill farms are all discussed under a section dealing with the progress of research.

We think as a friendly suggestion that it might be worth while carrying out experimental work with prontosil in some selected cases of disease in sheep. Vaccines, sera and nicotine mixture are all issued by the Management Committee.

Subscriptions in aid of the good work may be made payable to the Alan Duke of Northumberland Memorial Fund, University of Durham, King's College, Newcastle-on-Tyne.

Neuzeitliche Untersuchung der Zahnkrankheiten beim Pferd (*Modern Equine Dentistry*). By E. Becker, Dr. Med. Vet., Tierklinik Sarstedt, 1938. Pp. 118. 54 Figs. Hanover: M. & H. Schafer. Price RM. 6.

This book deals with the veterinary examination of horses' teeth, including the method of control of the head and equipment necessary to make a thorough and complete dental examination. Thereafter follows the technique of treatment of diseased teeth and their drilling and stopping. A further section is devoted to dental abnormalities, defects, caries and fractures of the teeth.

The little work is quite a valuable one, but probably more useful to a general clinic than to an ordinary everyday practitioner by reason of the number of special instruments and expert knowledge necessary to carry out the treatments described.

Erratum

In the title paragraph of the fourth edition of "Hobday's Surgical Diseases of the Dog and Cat" in the review columns, last month's issue, the name of the Editor, Professor James McCunn, is described in error as the "Professor of Surgery" in the Royal Veterinary College. This should have been "Professor of Anatomy," as the Chair of Surgery is filled by Professor J. G. Wright, to whom we owe an expression of regret for the mistake.

Publishers' Notices

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